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मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

IS 4795-1 (2009): Holders for Indicator Lamps for Electronic and Telecommunication Equipment, Part I: General Requirements and Tests [LITD 3: Electromechanical Components and Mechanical Structures for Electronic Equipment]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
इलैक्ट्रॉनिक एवं दूरसंचार उपस्करों के लिए होल्डर और
इंडिकेटर लैंप — विशिष्टि

भाग 1 सामान्य अपेक्षाएँ और परीक्षण
(पहला पुनरीक्षण)

Indian Standard

HOLDERS FOR INDICATOR LAMPS FOR
ELECTRONIC AND TELECOMMUNICATION
EQUIPMENT — SPECIFICATION

PART 1 GENERAL REQUIREMENTS AND TESTS

(*First Revision*)

ICS 31.220.01

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard (Part 1) (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Electromechanical Components and Mechanical Structures for Electronic Equipment Sectional Committee had been approved by the Electronics and Information Technology Division Council. This standard was first published in 1966. This revision has been undertaken to align it with latest practices. For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard.

Indian Standard

HOLDERS FOR INDICATOR LAMPS FOR ELECTRONIC AND TELECOMMUNICATION EQUIPMENT — SPECIFICATION

PART 1 GENERAL REQUIREMENTS AND TESTS

(*First Revision*)

1 SCOPE

This standard (Part 1) covers general requirements and methods of tests relating to holders (sealed and non sealed) for indicator lamps for use in electronic and telecommunication equipment for judging their electrical, mechanical and climatic properties.

2 REFERENCES

The standards listed in Annex A are necessary adjuncts to this standard.

3 TERMINOLOGY

For the purpose of this standard the following definitions shall apply.

3.1 Type Tests — Tests carried out to prove conformity with the requirements of the standard. These are intended to prove the general qualities and design of the given type of holder.

3.2 Acceptance Tests — Tests carried out on samples selected from a lot for the purpose of verifying the acceptability of the lot.

3.2.1 Lot — Holders of the same type, category and rating manufactured in the same factory during the same period using the same materials and processes.

3.3 Routine Tests — Tests carried out on each and every holder to check requirements which are likely to vary during production.

4 CLIMATIC CATEGORIES

There shall be three categories corresponding to the three climatic severities detailed below:

5 MATERIALS AND WORKMANSHIP

5.1 Materials

The holders shall be constructed from a suitable material which shall be free from flaws and shall conform to the relevant Indian Standard specification, if any. All materials used in the construction of the holders shall be such as are not susceptible to any mutual chemical reaction over the entire range of temperature for which the tag holders are designed.

5.2 Workmanship

All parts of the holders shall be manufactured in a thoroughly workmanlike manner and in accordance with the good engineering practice.

6 ELECTRICAL RATINGS

The rated voltage between terminals (and between terminals and body, if required), shall be specified for each holder.

7 MARKING

7.1 Each holder shall be clearly marked with the following information in the order given below:

- Manufacturer's name and/or trade-mark, and
- Manufacturer's code number.

<i>Climatic Test</i>	<i>Category I</i>	<i>Category II</i>	<i>Category III</i>
Dry heat	+100°C	+ 85°C	+70°C
Cold	−55°C	−40°C	−10°C
Damp heat long term	56 days	56 days	21 days
Damp heat accelerated	6 cycles	6 cycles	2 cycles
Rapid change of temperature	+100 to −55°C	+85 to −40°C	Not applicable
Low air pressure	44 mbar	300 mbar	600 mbar
NOTE — In special cases where the above categories are not applicable, other combinations of severities may be agreed to, provided such severities are chosen from IS 9000 (Part 1).			

7.1.1 In addition to the information given in 7.1 the following information shall be marked on the package of the holders:

- a) Nomenclature,
- b) Category,
- c) Any additional marking, if required by the purchaser or any other marking agreed to between the manufacturer and the purchaser, and
- d) Country of manufacturer.

7.2 BIS Certification Marking

The holder or its carton may also be marked with the Standard Mark.

7.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions, under which a license for the use of the Standard Mark may be granted to manufacturers or producers, may be obtained from the Bureau of Indian Standards.

8 TESTS

8.1 Classification of Tests

8.1.1 Type Tests

Unless otherwise specified, the manufacturer shall supply 22 samples for each category, type and rating for which approval is sought. The sequence of tests for type approval shall be in accordance with Annex B.

8.1.2 Acceptance Tests

From the lot which has passed routine tests, two groups of samples shall be selected. One for non-destructive tests (Group A) and the other for destructive tests (Group B). The samples in each group shall be subjected to tests as follows:

- a) *Group A (non-destructive tests)*
 - 1) Rated voltage application (*see 8.3.1*),
 - 2) Voltage proof (high voltage)(*see 8.3.2*),
 - 3) Insulation resistance (*see 8.3.3*), and
 - 4) Sealing (for sealed types only) (*see 8.5.10*)
- b) *Group B (destructive tests)*
 - 1) Dimensions (*see 8.5.2*),
 - 2) Soldering (*see 8.5.5*),
 - 3) Bump (*see 8.5.9*),
 - 4) Vibration (*see 8.5.8*),
 - 5) Robustness of terminations (*see 8.5.6*),
 - 6) Torque (*see 8.5.7*), and
 - 7) Climatic sequence (*see 8.6.1*).

8.1.3 Routine Tests

Every holder shall be subjected to general examination.

8.2 Conditions for Tests

8.2.1 General

The tests shall be carried out on the holders as received. In no case shall the contact parts be cleaned prior to the tests unless explicitly so agreed.

8.2.2 Selection of Samples

The samples for the testing shall be so selected as to be representative of each category and rating.

8.2.3 Atmospheric Conditions for Testing

Unless otherwise specified, all tests shall be carried out under standard atmospheric conditions specified in IS 9000(Part 1).

8.2.4 Pre-conditioning

Before measurements are made, the holders shall be stored at the measuring temperature and the relative humidity for a time sufficient to allow the holder to reach these conditions. The recovery period called for after conditioning is adequate for this purpose.

8.2.5 Correction to be Applied

When measurements are made at an ambient temperature other than the reference temperature, the results shall, wherever necessary, be corrected to that temperature. The ambient temperature during the tests shall be stated in the test report.

8.2.6 Drying

Where drying before the measurement is called for, it shall be done in accordance with IS 9000 (Part 1).

8.2.7 Mounting

Where mounting is specified in a test, the specimen shall be mounted in its normal manner to a metal plate which shall be earthed.

8.2.8 Other Precautions

During measurements the holders shall not be exposed to draughts, direct sun rays and/or other influences likely to cause errors.

8.3 Electrical Tests

8.3.1 Rated Voltage Application

With the lamp in the circuit, the appropriate rated voltage shall be applied for a period of 5 min between:

- a) Adjacent terminations, and
- b) Terminations connected together and earth.

The holder shall then be visually examined. There shall be no breakdown during and after this test.

8.3.2 Voltage Proof (High Voltage)

The specimen shall be mounted in its normal manner (see 8.2.7). Twice the appropriate working voltage specified for the holder shall be applied for 1 min \pm 5 s between:

- a) Adjacent terminations, and
- b) Terminations connected together and earth.

There shall be no breakdown or flash-over.

8.3.3 Insulation Resistance

The specimen shall be mounted in its normal manner (see 8.2.7). The insulation resistance shall be measured by the application, for 1 min \pm 5 s, of a voltage of 500 \pm 50 V dc between,

- a) adjacent terminations; and
- b) terminations connected together and earth.

The value of the insulation resistance shall be not less than that 10 M Ω between adjacent terminations and shall be not less than that 50 M Ω between terminations connected together and earth.

8.3.4 Radio Frequency Shunt Resistance (Parallel Damping)

The holders shall be mounted as specified in 8.2.7. The RF shunt resistance shall be measured at the frequency of 1 MHz \pm 10 percent between the

termination and the mounting plate or between the two adjacent terminations. The measuring method shall be chosen so as to ensure an accuracy better than \pm 10 percent. The value of RF shunt resistance shall be not less than that specified in the relevant specification.

8.3.5 Corona

The holders shall be mounted as specified in 8.2.7. Between the two adjacent terminations or between a termination and a mounting plate, an ac test voltage of 40 to 60 Hz shall be applied and increased gradually until discharge occurs. In order to determine the extinction voltage, the test voltage shall be decreased gradually until discharge ceases. The value of the voltage shall then be recorded. The extinction voltage shall not be less than the value specified in the relevant specification.

A schematic diagram of a circuit for this measurement is given in Fig. 1.

The frequency of parallel resonance formed by the inductance of the choke and coil and all capacitance (such as cable capacitance to earth input capacitance of CR tube, capacitance of connecting wires to earth, etc) shall be between 0.1 MHz and 1 MHz. At this frequency, the impedance of the circuit measured from the input terminal of the oscilloscope shall be not less than 0.1 M Ω . The resistance of the choke coil shall be sufficiently low so as to avoid interference from the 40 Hz to 60 Hz signal at maximum sensitivity in frequency range up to 1 MHz such that corona voltages of 50 μ V can be clearly distinguished, and its input impedance shall be not less than 1.0 M Ω .

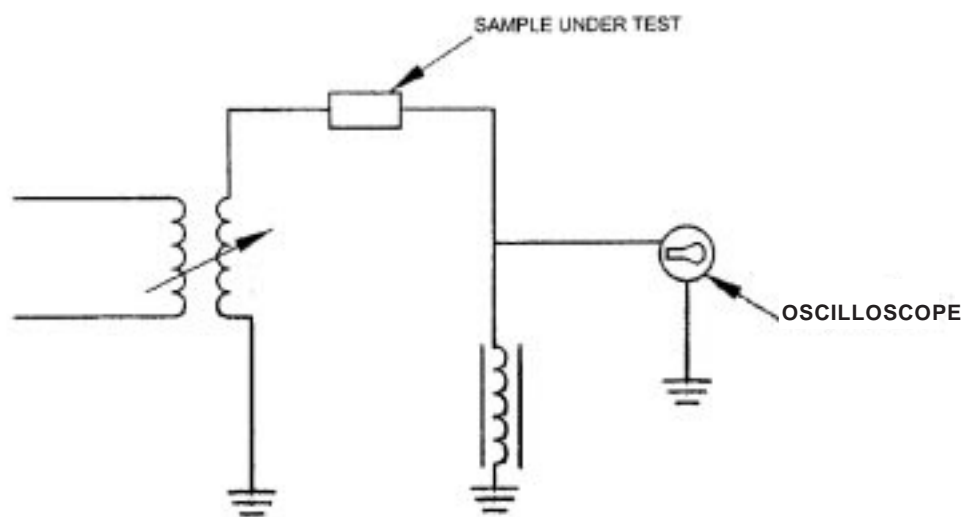


FIG. 1 CIRCUIT ARRANGEMENT FOR CORONA TEST

8.4 Illumination Tests

8.4.1 Chromaticity

This test is applicable only if called for in the detailed specification. The colour of a light signal is measured in terms of its chromaticity co-ordinates using the trichromatic system recommended by the International Commission on Illumination in 1931. The colour is expressed in the chromaticity co-ordinates X, Y and Z, the sum of which is unity. These co-ordinates are analogous to the proportion of red, green and blue respectively.

8.4.1.1 Measurement

The light signal shall be operated under the conditions stipulated by the manufacturer and if the temperature is colour matched by a full radiator. Its colour temperature shall be stated by the manufacturer. The colour of the light signal shall be defined by the chromaticity of the light reflected at an angle of 45° from a magnesium oxide screen which is placed normal to the optical axis of the light signal at a distance sufficient to ensure that the apparent colour of the screen is uniform. Measurements shall be carried out at a temperature of 20°C unless otherwise specified. Using any of the methods defined in 8.4.3.2.

8.4.1.2 Summary

When this test is required by the relevant sheet, the following details shall be specified:

- a) Limits of the chromaticity co-ordinates,
- b) Luminous intensity of the light emitted per unit projected surface area,
- c) Colour temperature of the light source, and
- d) Any deviation from the standard test method.

8.4.2 Illuminated Surface Temperature

The surface temperature of a button shall be measured after a period of illumination of 1h. The axis of the button travel of the switch mounted as given in 8.2.7 shall be in the vertical plane, with the internal lamp such as to be below the surface of the button.

8.4.2.1 Requirements

The temperature rise shall not exceed the maximum value specified by the relevant sheet.

8.4.2.2 Summary

When this test is required by the relevant sheet, the following details shall be specified:

- a) Maximum temperature rise, and
- b) Any deviation from the standard test method.

8.4.3 Transmittancy

The transmittancy of a colour filter is expressed as a percentage ratio of the luminance of a truly white screen, illuminated from a light source, to the luminance of the same screen when the colour filter is replaced by a non-absorbing medium of the same pattern and refractive index.

8.4.3.1 Measurement

The test shall be carried by using any of the methods defined in 8.4.3.2.

8.4.3.2 Methods of measurement

Measurements are made with a colorimeter by spectrophotometric analysis, by comparison with calibrated colour filters or by any method which gives the results in terms of the system recommended by the International Commission on illumination in 1931.

8.5 Mechanical Tests

8.5.0 General

Where appropriate, the gauges and tools to be used for the tests specified in 8.5.3 to 8.5.9 will be described in the relevant individual specification.

8.5.1 General Examination

The holders shall be visually examined for conformity with the following:

- a) Workmanship, finish and assembly shall be satisfactory, and
- b) Marking shall be in accordance with 7.

There shall be no deterioration in the feature mentioned above after electrical, mechanical and climatic tests.

8.5.2 Dimensions

The dimensions of the holders shall be checked for conformity with those specified.

8.5.3 Checking by Gauges

Where appropriate, the holder shall be mounted as specified. The appropriate 'GO' and 'NO-GO' gauges shall be offered to the specimen. The specimen shall accept the 'GO' gauge without undue force and without damage. The specimen shall not accept the 'NO-GO' gauge.

8.5.4 Contact Pressure

The force required to depress the springs or lips (which is meant to establish electrical contacts with the lamp) shall be measured in the specified manner. The force should meet the requirements specified in the relevant specification.

8.5.5 Soldering

In order to determine the ability of the terminations to wet easily and to check that the holder itself is not damaged by the soldering process, the holders shall be tested in accordance with IS 9000 (Part 18/Sec 2).

The method of the test, that is, Method I or Method II, the size of the soldering bit in case of Method II and period of recovery shall be as specified.

After this test holder shall be visually examined and there shall be no damage to the holder.

8.5.6 Robustness of Terminations**8.5.6.1 Tensile test**

This test shall be carried out in accordance with IS 9000 (Part 19/Sec 1). The loading weight shall be specified in the relevant specification.

8.5.6.2 Bend test

This test shall be carried out in accordance with IS 9000 (Part 19/Sec 3). For tag termination, two consecutive bends shall be applied.

8.5.6.3 Torsion test

This test shall be carried out on each termination in accordance with IS 9000 (Part 19/Sec 4). Two consecutive rotations of 180° shall be applied.

8.5.6.4 Torsion test on screw terminals

This test shall be carried out in accordance with IS 9000 (Part 19/Sec 4).

8.5.6.5 After each of the tests specified in **8.5.6.1** to **8.5.6.4**, the holders shall be visually examined and there shall be no damage to the holders.

8.5.7 Torque**8.5.7.1 Fixing torque**

This test is applicable to the holders which are mounted by means of a fixing nut on an externally threaded body. The specimen shall be mounted in the normal manner and fixing torque as specified in the relevant specification shall be applied to the fixing nut.

In case of non panel mounting type of lamp holders, the force required to slide the holder over the

specified mounting lug shall be measured. The force shall meet the requirements specified in the relevant specification.

There shall be no fracture or other damage.

8.5.7.2 Lens torque

This test is applicable to holders having threaded caps. The specimen shall be mounted in the normal manner and the lens shall be screwed tightly into position. A torque specified in the individual specification shall then be applied to the lens in the direction of fixing.

There shall be no fracture or other damage to the holder or lens.

8.5.7.3 Dimmer torque

This test is applicable to lenses incorporating iris or other dimming devices. The lens shall be fitted to its appropriate light indicator. With the lens fixing ring securely held, a torque shall be applied to the dimmer in both clockwise and anti-clockwise directions.

The torque required to move the dimmer over the limits of its travel in both clockwise and anti-clockwise directions shall not exceed 720 g cm. The movement shall be smooth.

8.5.8 Vibration

The holders shall be mounted in the normal manner (*see 8.2.7*) and subjected to vibration tests in accordance with IS 9000 (Part 8) for specified severity. During this test, each specimen shall be carrying a suitable lamp which shall be operating. Half the specimen shall be tested with their appropriate lenses fitted, the other half shall be tested without lenses.

There shall be no resonance observable by stroboscopic or other appropriate means and no loosening of parts. There shall be no intermittency of indicator attributable to the holder. The lens shall remain firmly in position.

8.5.9 Bump

The holders shall be mounted on the table for bump test and shall be subjected to the bump tests in accordance with IS 9000 (Part 7/Sec 2). The sample shall be subjected to 4 000 bumps at 40 g. During this test, each holder shall be having a suitable lamp not energized and shall be fitted with its appropriate lenses.

There shall be no damage or loosening of parts. The lamp shall be securely held and shall be ready for operation immediately after the test. The lens shall remain firmly in position.

8.5.10 Sealing (For Sealed Types Only)

This test is applicable to sealed types (including panel seals) of holders. The holders shall be subjected to this test in accordance with IS 9000 (Part 15/Sec 1).

The leakage rate across all seals shall not be greater than 1 cc/h unless otherwise.

8.6 Climatic Tests

8.6.0 The holders shall be pre-conditioned as specified in **8.2.4**.

8.6.1 Climatic Sequence

The sequence consists of dry heat, damp heat (accelerated) first cycle, cold, low air pressure and damp heat (accelerated) remaining cycles.

8.6.1.1 Dry heat

The holders shall be subjected to this test in accordance with IS 9000 (Part 3/Sec 3). The temperature of the test chamber shall be maintained at the appropriate maximum value for the category.

After removal from the chamber, the following tests shall be carried out:

- a) Insulation resistance (*see 8.3.3*), and
- b) Sealing (where applicable) (*see 8.5.10*).

The value of insulation resistance shall not be less than that specified in the relevant specification.

The holders shall then be allowed to remain under standard recovery conditions. After recovery, the holders shall be visually examined. There shall be no mechanical deterioration.

8.6.1.2 Damp heat (accelerated) first cycle

This test shall be carried out in accordance with IS 9000 (Part 5/Sec 1). After the specified period of conditioning the holders shall be removed from the chamber and allowed to recover under conditions appropriate to the test and then visually examined. There shall be no visible damage. The marking shall be legible and indelible.

8.6.1.3 Cold test

This test shall be carried out in accordance with IS 9000 (Part 2/Sec 3). The temperature of the chamber shall be appropriate to the category of the holder under test and the duration of the exposure shall be 2 h. While the specimen is at low temperature, sealing test (where applicable) in accordance with **8.5.10** shall be carried out. Immediately after this test, holders shall be removed from the chamber and visually examined. There shall be no mechanical deterioration.

8.6.1.4 Low air pressure test

The holders shall be subjected to the low air pressure test in accordance with IS 9000 (Part 13). The test chamber shall be maintained at a pressure appropriate to the category of the holders under test and the duration of the test shall be 5 min. During the conditioning, the voltage proof test in accordance with **8.3.2** shall be carried out. There shall be no sign of glow-discharge, breakdown, flashover or harmful deformation of the holders.

8.6.1.5 Damp heat (accelerated) test — remaining cycles

The holders shall be subjected to the test in accordance with IS 9000 (Part 5/Sec 2) for the remaining number of cycles.

At the end of the specified number of cycles, the holders shall be removed from the chamber and allowed to recover under recovery conditions appropriate to this test (except in the case of Category III specimens for which the recovery period shall be 24 h).

NOTE — Remaining damp heat cycles required are as follows:

Category I	:	5 cycles
Category II	:	5 cycles
Category III	:	1 cycle

8.6.1.6 Final measurement

The holders shall then be subjected to the following tests in the order indicated and shall meet the requirements specified in the relevant specification:

- a) Voltage proof (high voltage) (*see 8.3.2*),
- b) Insulation resistance (*see 8.3.3*),
- c) Sealing (where applicable) (*see 8.5.10*), and
- d) General examination (*see 8.5.1*).

Voltage proof test shall be carried out immediately following the recovery period.

8.6.2 Damp Heat (Long Term Exposure)

The holders shall be subjected to this test in accordance with IS 9000 (Part 4). The duration of the exposure shall be appropriate to the category. A working voltage as specified in the relevant specification shall be applied between two adjacent terminations or between termination and the mounting plate. After the specified period of conditioning, the holders shall be removed from the chamber and allowed to remain under recovery condition appropriate to this test (except in the case of Category III specimens for which the recovery period shall be 24 h).

The holders shall then again be subjected to the tests specified in **8.6.1.6** in the order given and shall meet

the corresponding requirements. Voltage proof test shall be carried out immediately following the recovery period.

8.6.3 Rapid Change of Temperature Test

This test is applicable only to holders of Category I and Category II. The holders shall be subjected to this test in accordance with IS 9000 (Part 14/Sec 1). The maximum and minimum temperatures shall be appropriate to the category of the lamp holder. The number of cycles shall be five. The period of exposure to both maximum and minimum temperature shall be 1h each. After the exposure, the tag strips shall be removed from the chamber and allowed to remain under recovery conditions appropriate to this test.

The holders shall then be subjected to the tests mentioned in 8.6.1.6 (a), (b) and (d) and shall meet the requirements specified in the relevant specifications.

The sealing test shall then be performed. The leakage rate across all seals shall not be greater than 1 cc/h unless otherwise specified.

8.6.4 Salt Mist Test

The holders shall be subjected to this test in accordance with IS 9000 (Part 11), the period of exposure being four days. After the specified period of exposure the holders shall be allowed to recover under the recovery conditions appropriate to this test. The holders shall be visually examined. There shall be no sign of corrosion or illegibility of marking.

8.6.5 Storage

The holders shall be subjected to this test in accordance with IS 9001 (Part 14).

At the end of each test period and on completion of there test, the samples shall be subjected to the tests as follows and shall conform to the requirements of the relevant specifications:

- a) Voltage proof (high voltage) (see 8.3.2),
- b) Insulation resistance (see 8.3.3),
- c) Soldering (see 8.5.5), and
- d) General examination (see 8.5.1).

8.7 Electrical Endurance Test

8.7.1 For Category I and II

Each specimen shall be fitted with a lamp of the maximum wattage rating together with its appropriate lens. The holders shall be mounted as specified and subjected to the electrical endurance

test. For the panel mounted type, the lens and the front portion of the panel shall project into an ambient temperature of 55°C. The back of the panel portion shall project into an ambient temperature appropriate to the maximum temperature category of the holder.

8.7.1.1 For non-panel mounted type of holders, the sample shall be placed completely in an ambient temperature equal to its maximum temperature. The holders thus mounted shall be subjected to these conditions for a period of 2 000 h continuously and during this time the lamps shall be dissipating the rated wattage.

8.7.2 For Category III Only

Each specimen shall be fitted with a lamp of the maximum wattage rating together with its appropriate lens. The holders shall be mounted as specified and subjected to the electrical endurance test. For the panel mounted type, the holders shall kept in an ambient temperature of 55°C.

8.7.2.1 For non-panel mounted type of holders, the sample shall be placed completely in an ambient temperature equal to its maximum temperature. The holders thus mounted shall be subjected to these conditions for a period of 2 000 h continuously and during this time the lamps shall be dissipating the rated wattage.

8.7.3 If lamps fail during this endurance test, the lamps shall be replaced. This shall not be called a failure unless the failure of the lamp is due to the holder.

At the conclusion of the test, the holders shall be allowed to recover under standard atmospheric conditions for recovery and visually examined. There shall be no mechanical deterioration and the marking shall be legible.

The holders shall then be subjected to the tests mentioned in 8.3.2, 8.3.3 and 8.3.5 and shall meet the requirements specified in the relevant specifications.

8.8 Mechanical Endurance Test

8.8.1 The contact spring of the lamp holder shall be subjected to a mechanical endurance test.

The gauge and the methods of fixing shall be according to the relevant specification. The contact spring of the gauge shall be depressed through 0.5 mm and released. This operation shall be carried out 20 times.

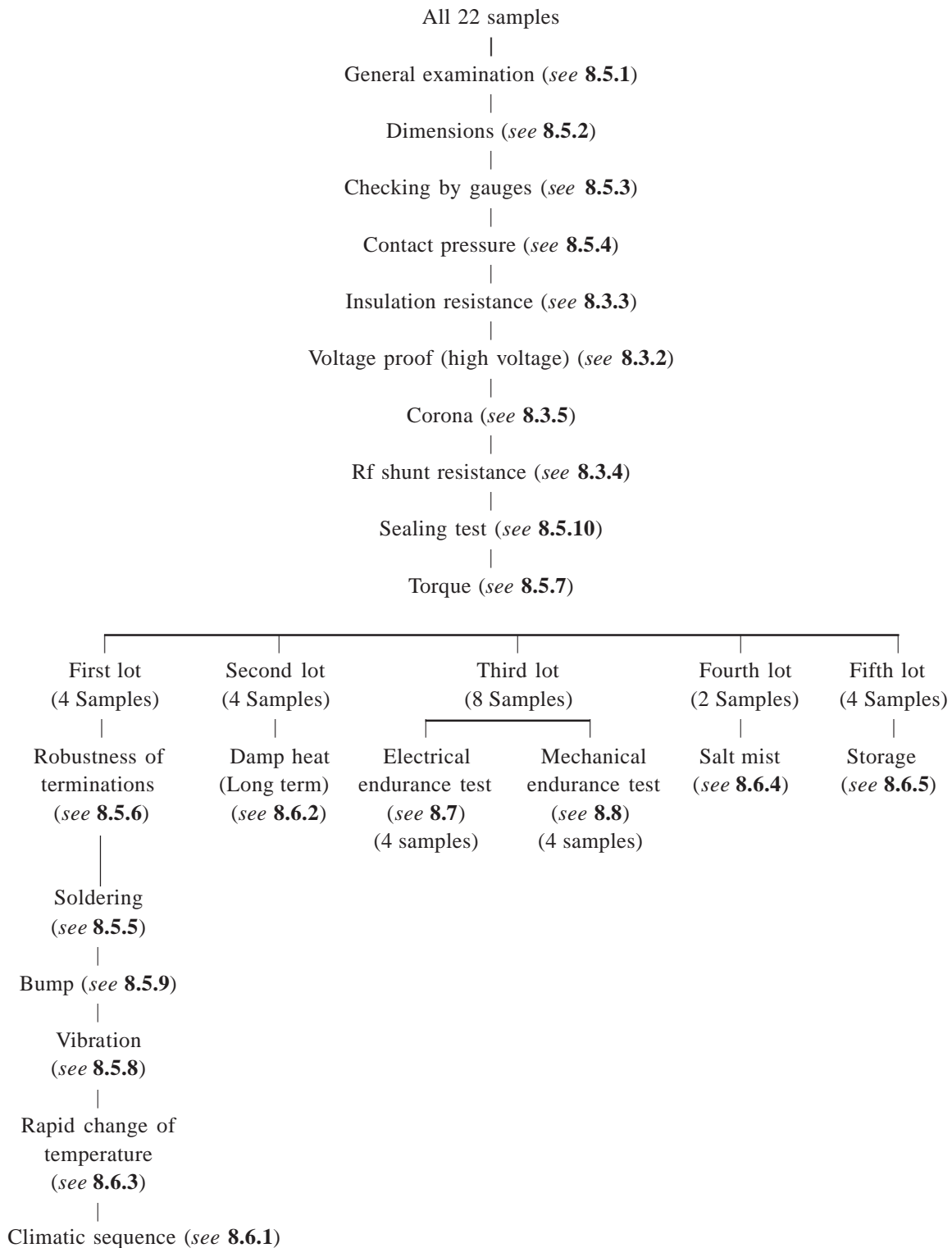
8.8.2 After the test, the spring position shall meet the requirements as specified in the relevant specification.

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
9000	Basic environmental testing procedures for electronic and electrical items:	(Part 14/Sec 1) : 1988	Test N: Change of temperature, Section 1 Test Na: Rapid change of temperature (thermal shock) with prescribed time of transition — Two chamber method (<i>first revision</i>)
(Part 1) : 1988	General (<i>first revision</i>)		
(Part 2/Sec 3) : 1977	Cold test, Section 1 General		
(Part 2/Sec 3) : 1977	Cold test, Section 3 Cold test for non-heat dissipating items with gradual change of temperature	(Part 15/Sec 1) : 1982	Sealing test, Section 1 General
(Part 3/Sec 3) : 1977	Dry heat test, Section 3 Dry heat test for non-heat dissipating items with gradual change of temperature	(Part 18/Sec 2) : 1981	Solderability test, Section 2 Resistance of items to soldering tests
(Part 4) : 1979	Damp heat (steady state)	(Part 19/Sec 1) : 1986	Test U: Robustness of terminations and integral mounting devices, Section 1 Test Ua1: Tensile (<i>first revision</i>)
(Part 5/Sec 1) : 1981	Damp heat (cyclic) test, Section 1 16 + 8h cycle	(Part 19/Sec 3) : 1986	Test U: Robustness of terminations and integral mounting devices, Section 3 Test Ub: Bending (<i>first revision</i>)
(Part 5/Sec 2) : 1981	Damp heat (cyclic) test, Section 2 12 + 12h cycle		
(Part 7/Sec 2) : 1979	Impact test, Section 2 Bump	(Part 19/Sec 4) : 1986	Test U: Robustness of terminations and integral mounting devices, Section 4 Test Uc: Torsion (<i>first revision</i>)
(Part 8) : 1981	Vibration (sinusoidal) test		
(Part 11) : 1983	Salt mist test	9001 (Part 14) : 1979	Guidance for environmental testing: Part 14 Storage tests
(Part 13) : 1981	Low air pressure test		

ANNEX B*(Clause 8.1.1)***SEQUENCE OF TYPE TESTS**

Bureau of Indian Standards

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Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160022	{ 260 3843 260 9285
Southern	: C. I. T. Campus, IV Cross Road, CHENNAI 600113	{ 2254 1216, 2254 1442 2254 2519, 2254 2315
Western	: Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	{ 2832 9295, 2832 7858 2832 7891, 2832 7892

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